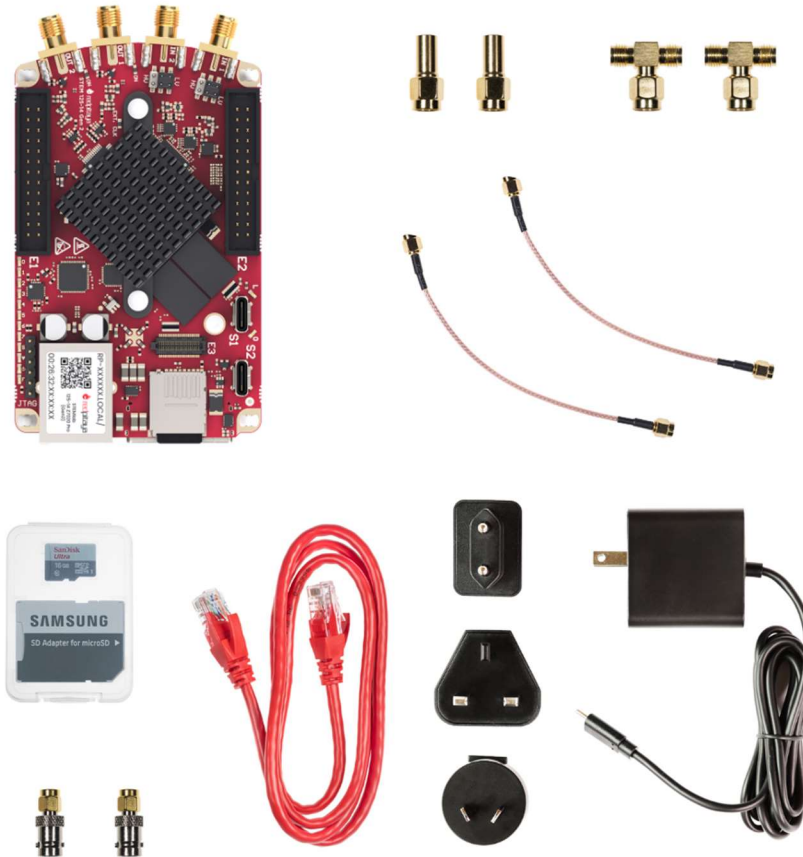




Part: IZD0052

STEMlab 125-14 PRO Z7020 Gen 2 Starter Kit

Introducing the Red Pitaya STEMLab 125-14 PRO Z7020 Gen 2 Starter Kit, a next-generation all-in-one measurement and control solution built for high-performance applications. Designed for engineers, researchers, and industry professionals, this kit combines powerful hardware with precision measurement tools in one compact device.

The Gen 2 PRO Z7020 board features a Zynq 7020 SoC, 1 GB RAM, and significantly improved analog front- and back-ends for ultra-low noise performance. With the new

redesigned and improved front-end, reduced crosstalk, USB-C connectivity, and support for multi-channel synchronization, it sets a new standard in software-defined instrumentation.

Whether you're developing cutting-edge RF systems, working on quantum or photonics research, or implementing real-time industrial monitoring, the STEMLab 125-14 PRO Z7020 Gen 2 Starter Kit delivers unmatched flexibility and measurement accuracy right out of the box.

Key features

- Ultra-low noise, high-fidelity analog front-end
- Zynq 7020 SoC with dual-core ARM Cortex-A9 and 1 GB DDR
- $2 \times 125\text{MSPS}$ 14-bit analog inputs and $2 \times 14\text{-bit}$ outputs
- Crisp $50\ \Omega$ output impedance and improved crosstalk (70 dB up to 30 MHz)
- High SFDR: 50 dB @ 10 MHz, 10 dBm
- Internal/external clock switching with CLK_SEL pin
- E3 connector with 8 differential pairs and boot extension options
- USB-C connectivity for power, serial, USB, and synchronization
- Remote access via web interface over Ethernet
- Compatible with Python, MATLAB, LabVIEW, and more
- Free, open-source software and web apps
- Supports synchronization of multiple devices for multi-channel setups
- Reliable operation without voltage glitches on startup
- OEM variant available for custom integration

What's in the box

- Red Pitaya STEMLab 125-14 PRO Z7020 Gen 2 digitizer board
- MicroSD card (with OS image pre-installed)
- 5V 5A USB type-C power supply
- Ethernet cable
- 2 x SMA-BNC adapters
- 2 x 50 ohm termination
- 2 x SMA T adapter
- 2 x SMA Cable

Basic

System memory	Micro SD up to 32GB
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Connectivity

Ethernet	1 Gbit
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USB	USB-C
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WIFI	Using Wi-Fi dongle
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RF inputs

Channels	2
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Sample rate	125MS/s
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ADC resolution	14 bit
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Full scale voltage range	$\pm 1V / \pm 20V$
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Input Coupling	DC
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Bandwidth	DC-60MHz
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Input impedance	1M Ω
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RF outputs

Channels	2
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Sample rate	125MS/s
DAC resolution	14 bit
Full scale voltage range	±1V/±2V
Load impedance	50Ohm(1V) and High-Z(2V)
Shortcut protection	Yes
Typical raising/falling time	2V / 10ns
Bandwidth	DC-60MHz
Extension connector	
Digital IOs	16
Analog inputs	4 channels 0-3.5V 12bit
Analog outputs	4 channels 0-1.8V 12bit
Communication interfaces	I2C , SPI , UART
Available voltages	+ 3.3V ,

+ 5V

,

-5V

Synchronisation

Trigger input Through extension connector

Daisy chain connection USB-C

Ref. clock input Through extension connector

More

QSPI eMMC boot module Available

Weight 0,5 kg

Dimensions 22 × 15 × 8 cm